**9.2.2 Patterns with Complex Numbers Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

If you know the **roots** (zeros), you know the **x-intercepts**.

**Part 1:** Why do **complex roots** always come in pairs?

Add each pair of complex numbers.

1. 2 + i and 2 – i
2. -4 + i and -4 – i
3. 3 – 5i and 3 + 5i

Multiply each pair of complex numbers.

1. 2 + i and 2 – i
2. -4 + i and -4 – i
3. 3 – 5i and 3 + 5i

**Part 2**: Write a **quadratic equation** that has these numbers as **roots**.

a.) ¾ and -5 b.) 3i and -3i

c.) 5 + 2i and 5 – 2i d.) -3 + √2 and -3 - √2